

Introduction

Gels are viscoelastic materials formed by the immobilization of liquids in a 3-dimensional network of fibers formed by polymers or the aggregation of smaller molecules. The occurrence of gels in our everyday life is very common but it is not easy to accurately define gels. In the literature some definitions are available^{1,2} but they are not applicable on a routine basis. Gels are generally classified into two types, one of them is called chemical gel (polymer gel) where the three dimensional structure is generated by cross-linking through covalent bonds and such gels are thermally irreversible. The other type includes gels derived from low molecular mass compounds and they are known as physical gels, such gels result from the self-assembly of the gelator molecules to form entangled fibrous networks. The driving forces for this self-assembly are H-bonding, π - π stacking, donor-acceptor interaction, solvophobic and van der Waals interactions. As these interactions are weak in nature the gels can be melted to sols by heating and appropriately these gels are termed as reversible.

Low molecular mass organogelators(LMOG): An overview

In the literature there are several reports on the low molecular mass organogelators and the structural diversity range from simple alkanes to complex phthalocyanins.³ The gelation property of most of these molecules were discovered serendipitously typically from a failed crystallization attempt rather than careful design. In recent years though there are many reports where the design of these compounds were made rationally based on structural modification of a known gelator. Several reviews and articles have appeared in the literature which attempt to correlate the structural diversity of these molecules to their supramolecular assembly.